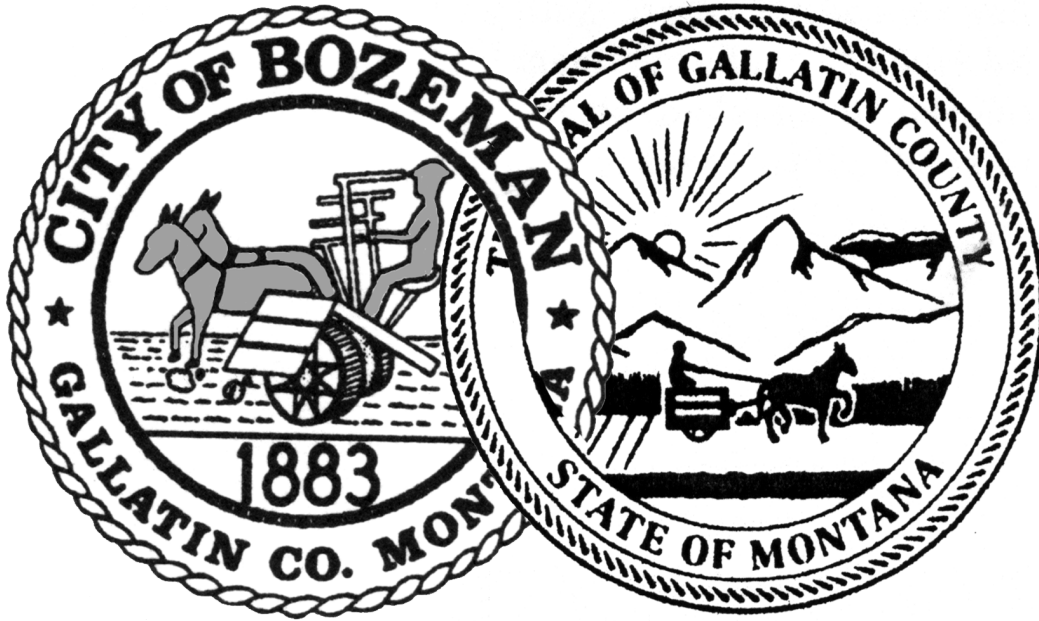


Wastewater Treatment Systems

Guidance/Policy

Documents

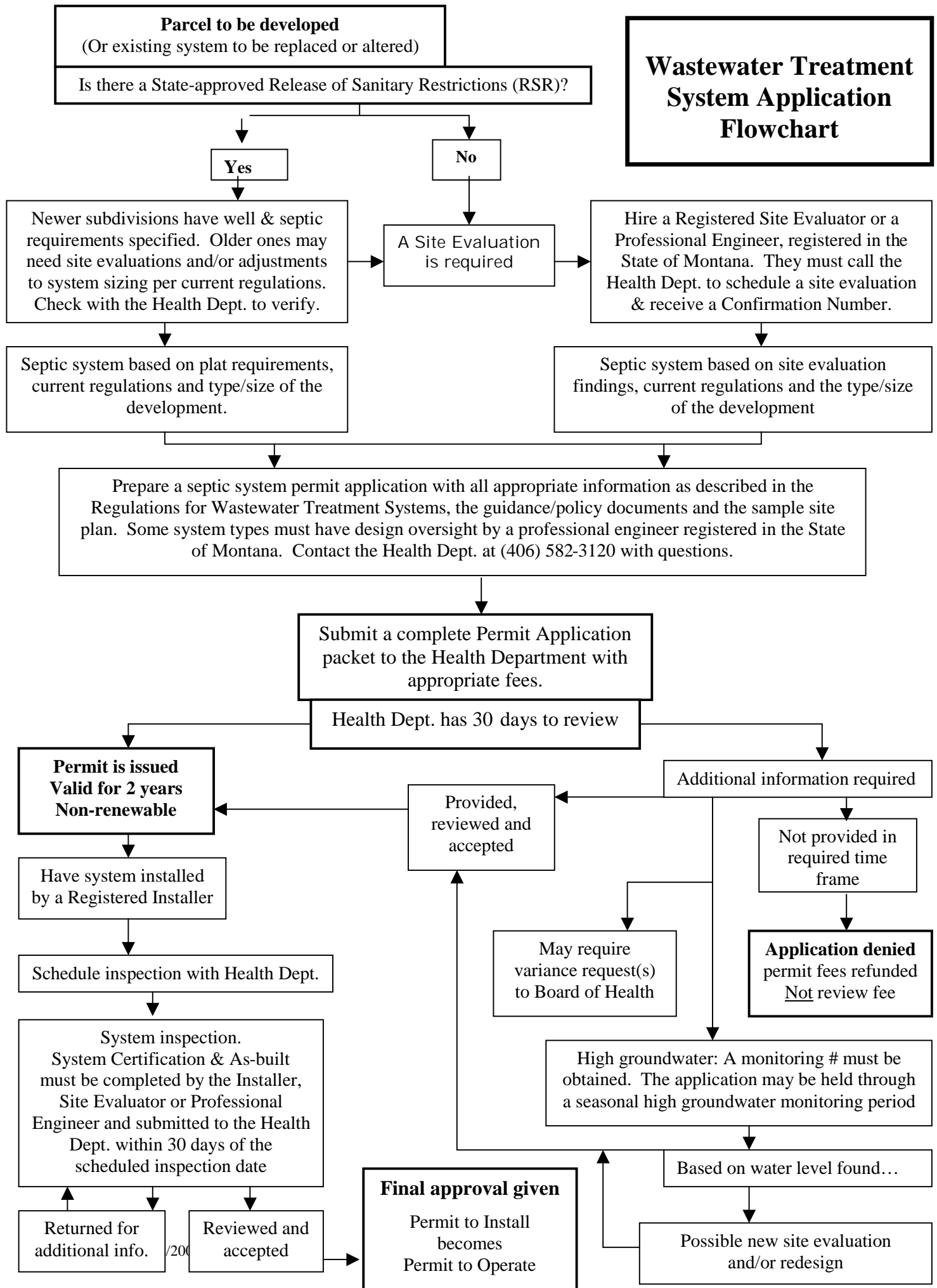
(not all inclusive)



**Gallatin City-County Health Department
Environmental Health Services**

Effective June 27, 2004

\$2.50



HISTORY

History of the Gallatin County Wastewater Treatment Regulations

A. Regulations for WWTS were first established in Gallatin County on January 1, 1966. Subsequent revisions to the regulations occurred as follows:

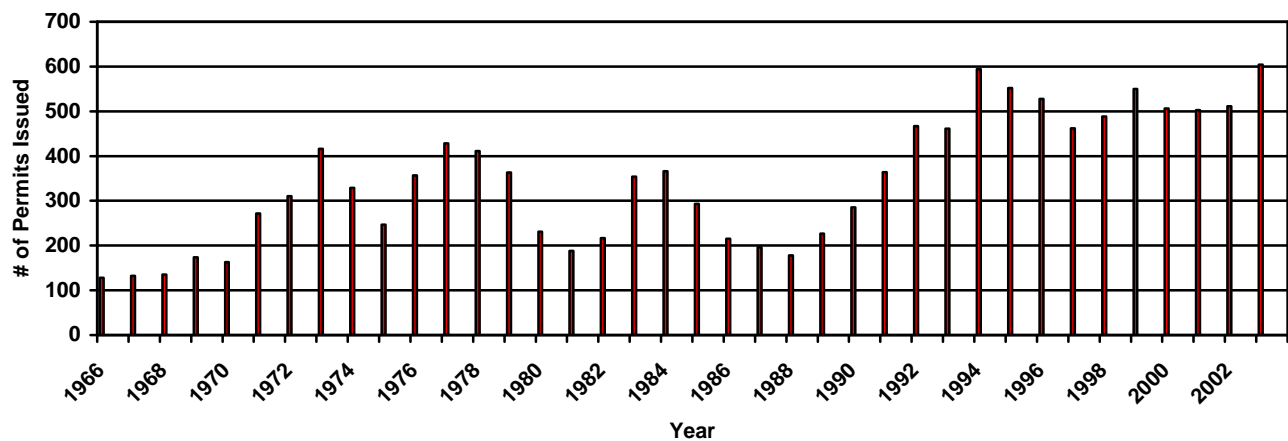
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|------------------|------------------|
| 1) 1970 | 6) June 12, 1994 |
| 2) 1973 | 7) May 31, 1997 |
| 3) 1978 | 8) July 1, 2001 |
| 4) May 1, 1992 | 9) June 27, 2004 |
| 5) April 1, 1993 | |

The following table and graph shows the number of septic permits issued for that particular year.

Table 1
Wastewater Treatment System Permits Issued

Year	# Issued	Year	# Issued	Year	# Issued	Year	# Issued
1966	128	1976	357	1986	215	1996	528
1967	132	1977	428	1987	196	1997	462
1968	135	1978	411	1988	178	1998	488
1969	174	1979	363	1989	227	1999	550
1970	163	1980	231	1990	285	2000	506
1971	272	1981	188	1991	364	2001	503
1972	310	1982	217	1992	467	2002	511
1973	416	1983	354	1993	461	2003	604
1974	329	1984	366	1994	594		
1975	247	1985	293	1995	552		

Graph B-1



History of the Sanitation in Subdivisions Act (Plat Approval Statements).

- A. On February 28, 1961, the 37th Montana Legislature determined that the health and safety of Montana citizens was being endangered by drainage from cesspools, septic tanks, privies, water closets, and other sources of polluting matter by liquid raising to the ground surface creating nuisances and seeping into drinking water supplies. Because of this concern, the first health department law regarding subdivisions was enacted. Under this law, a subdivision was considered as a division of land creating 5 or more parcels any of which is less than 5 acres, along an existing or proposed street, highway easement or right-of-way.
- B. On February 28, 1967, the definition of a subdivision was changed to mean a division of land creating 2 or more parcels, any of which is less than 5 acres, along an existing or proposed street, highway easement or right-of-way. In addition, all subdivision plats were subject to sanitary requirements but the Clerk & Recorder can record the plat without regard to sanitary requirements provided sanitary restrictions are attached to the plat. No building, the use of which by persons necessitates supplying water, sewage, or solid waste disposal, shall be built until such restriction has been removed or modified.
- C. On July 1, 1973, the Sanitation in Subdivisions Act was brought into law. This law required all sanitary restrictions placed on a subdivision be reviewed and removed by the Montana Department of Health before the plat could be filed, any lots could be sold or any dwelling was erected. The law included condominiums or areas providing space for camping trailers, house trailers or mobile homes. The definition of a subdivision was changed to mean a division of land into 2 or more parcels, whether contiguous or not, any of which is 10 acres or less, excluding roadways.
- D. Further redefinition of a subdivision occurred on May 1, 1975. A subdivision was then and is currently defined as a division of land which creates one (1) parcel of less than 20 acres which is exclusive of public road ways. See 61-1-205 and 61-1-206, MCA, for the definition of a public roadway.
- E. In 1977, the 45th Legislature passed a bill that allowed the Montana Department of Health (now MDEQ) to contract with local governments to perform reviews of minor subdivisions. A minor subdivision is a division of land created 1 to 5 parcels of less than 20 acres per parcel.
- F. Sanitation in Subdivision Act revisions became effective on April 20, 2001, allowing local health departments to review major subdivision lots with onsite individual/shared or multiple-user systems and providing a mechanism for local health departments to be notified of a subdivision site investigation prior to a subdivision application.
- G. In summary, if a parcel falls into one of the following categories, the property is subject to the Sanitation in Subdivisions Act and must have the sanitary restrictions lifted prior to the construction of any dwelling that requires a water supply or creates wastewater.
 - 1. The property is part of a subdivision created after February 28, 1961 containing 5 or more parcels any of which is less than 5 acres.
 - 2. The property is part of a subdivision created after February 28, 1967 containing 2 or more parcels any of which is less than 5 acres.
 - 3. The property is part of a subdivision created after July 1, 1973 containing 2 or more parcels any of which is less than 10 acres.
 - 4. The property is part of a subdivision created after May 1, 1975 containing 1 or more parcels under 20 acres.

APPLICATION FOR PERMIT

A. Permit Application Form

All permit applications shall be made in writing and in permanent ink, on forms available from EHS. A permit application shall only be signed by the property owner or their authorized agent. The legal property owner is the owner of record as filed in the C & R's office at the time the application is submitted to EHS. The permit application form shall include the following information:

1. Category for which the system is being applied: New, Upgrade/Expansion, Replacement, Failed, Individual/Shared, Multiple-User, Commercial and/or Public (check all that apply).
2. Confirmation # (when applicable).
3. Name, mailing address and telephone number of the legal property owner.
4. Name, mailing address and telephone number of the applicant (if other than the legal property owner).
5. The authorized road address of the site/structure for which the permit is being applied. Authorized road addresses may be obtained from the Gallatin County Geographic Information System (GIS) Department. (Their office may be contacted at (406) 582-3049).
6. Name of subdivision as noted on the Plat Approval Statement (phase, block, lot) and the approval date or Certificate of Survey (C.O.S.) number and lot/tract designation as applicable.
7. Legal description (Section, Township, Range).
8. Parcel size.
9. The number and type of structure(s) proposed to be connected to the system and;
 - a. Number of bedrooms to be served by the system for residences (an unfinished basement must be considered as an additional bedroom), and/or,
 - b. Estimated volume of wastewater produced (the submittal packet must include a description of how this estimate was determined for non-residences).
10. Verification that the RSR has been recorded in the C & R and the EQ #.
11. Type of Water Supply approved to serve the property.
12. Type of WWTS required by the RSR or proposed by the SE/PE.
13. Number and type of structures allowed per the RSR.
14. Amount of drainfield required per the RSR or recommended by the SE/PE.
15. Any other conditions per the RSR or the SE/PE.
16. Signature of the legal property owner or their authorized agent.
17. Additional information may be requested at EHS discretion.

B. Site Plans 3 copies required: see site plan requirements.

SITE PLAN MINIMUM REQUIREMENTS

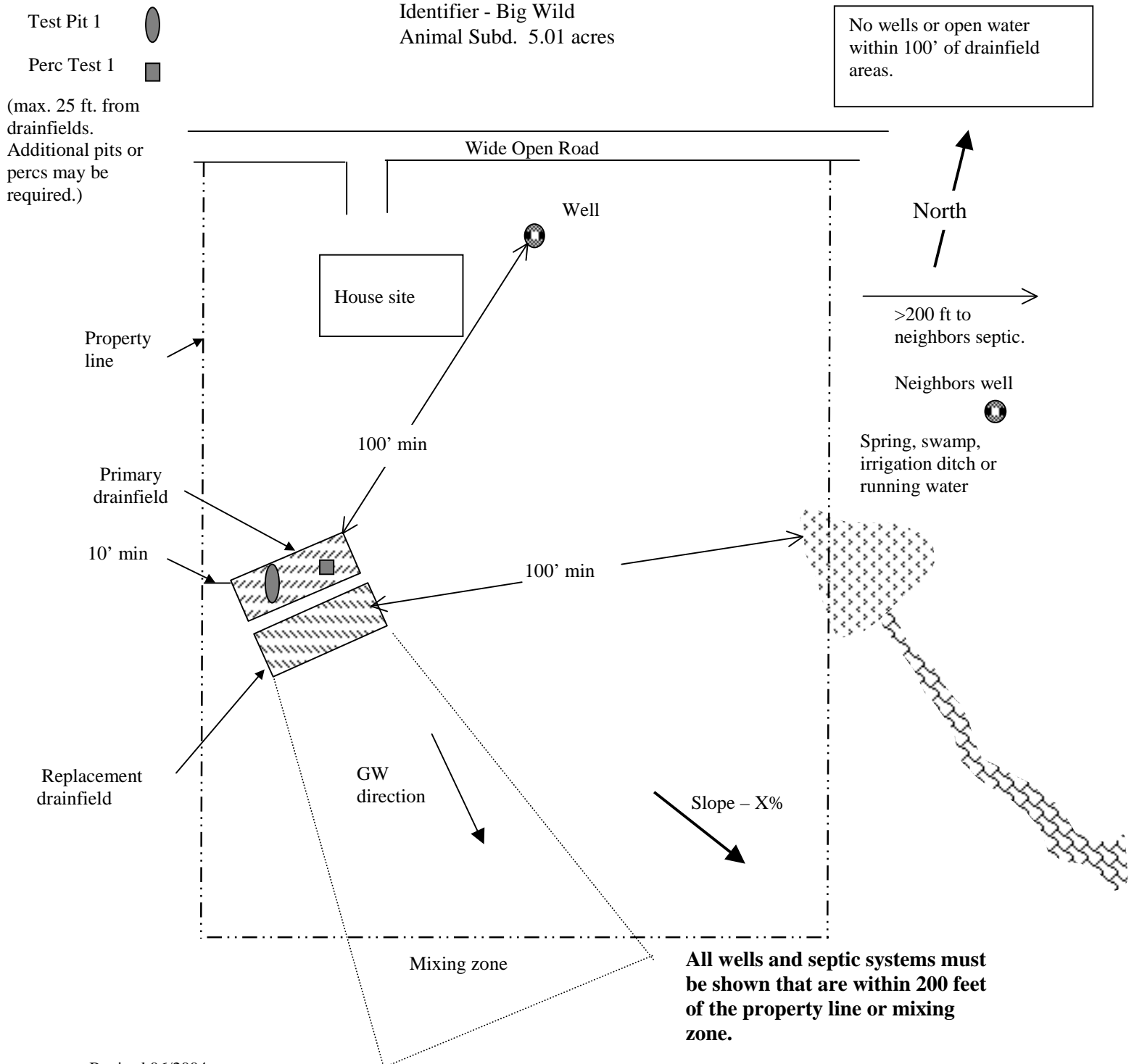
- A. All applications must include three (3) copies of a site plan on paper no larger than 11 X 17 inches. Recommended scale is one inch equals twenty feet or one inch equals thirty feet. If drawing is not to scale, appropriate setback distances (Table 1, ARM 17.36.918) must be indicated. All site plans must, at a minimum, include the following:
1. Shape and size of the parcel, including all recorded property boundaries, easements and/or right-of-ways.
 2. Location of the proposed primary and replacement absorption systems.
 3. The locations of all wells and water supplies (per state approval and/or otherwise, proposed and existing) on the parcel and their distances to at least two (2) property lines. All wells (or well locations approved per state or local authority) must have a designated 100-foot radius zone of influence area shown.
 4. The location of any wells, drainfields, surface waters, drainage ways and floodplains on the property and within 100 feet of the property boundary and mixing zone.
 5. A statement verifying that “*there are no wells or surface water within 100 ft. (50 ft. for tank settings) of the proposed drainfield*”. For tank settings only, a statement verifying “there are no wells or surface water within 50 feet of the proposed tank location” (Public wellheads must be at least 100 feet from a septic and/or pump tank).
 6. Location of house site(s), driveways, outbuildings, etc. and proximity to septic tank and absorption systems.
 7. North point.
- B. For properties that required a site evaluation, the following additional information must be included on the site plan:
1. Location and identification number of all soils test pits and percolation tests.
 2. Slope in the area of the absorption system and any slopes greater than or equal to 25% within 50 feet of the proposed drainfield areas.
- C. For those applications requiring nondegradation review the following additional information must be included on the site plan:
1. Mixing zones for each proposed onsite WWTS. All wells and drainfields within 200 feet of the mixing zone must be shown
 2. Direction of ground water flow (hydraulic gradient).
 3. The approximate locations and identification of all wells used in the nondegradation review must either be shown on the site plan, or on an accompanying USGS topographic map or other similar map.
 4. The location of all state surface waters within ½ mile of the proposed development must be shown on the site plan, or on an accompanying USGS topographic map or other similar map.
 5. The location of all on-site or off-site wells (existing or approved per an RSR) that are within 200 feet of any proposed/existing mixing zones or drainfields.
 6. Additional information may be requested at EHS’s discretion.

Gallatin City-County Health Department

Site Plan Illustration

Notes:

- 1) Drawing not to scale.
- 2) Lots with previously approved drainfield and well locations do not need slope, ground water direction, soil information sites, or mixing zone.
- 3) All existing, approved or proposed wells and drainfields must be shown within 200 feet of the property lines or mixing zone.



SITE EVALUATION

The following is a summary of information that must be submitted to EHS when a site evaluation is required.

- A. Name of the SE or PE performing the site evaluation.
- B. A site plan indicating the location of all test pits, surface water, percolation tests, nearby property lines, mixing zones, etc. (in addition to the information listed on the site plan requirements).
- C. Soil Profile: At least one soil pit is required that is located within 25 feet of the proposed drainfields (primary and replacement) for soil descriptions. The minimum depth of soil profile descriptions must be eight (8) feet unless a limiting layer is encountered at a shallower depth. The soil profile may be completed to a greater depth to demonstrate compliance with nondegradation rules for phosphorous breakthrough or deep trench requirements. If the locations exhibit a varied geology additional pits may be required. The following soil properties must be evaluated to the full depth of the holes (Appendix I)
 - 1. Thickness of layers or horizons;
 - 2. Texture, (USDA Soils Classification System) structure, and consistency of soil horizons;
 - 3. Color (preferably described by using the notation of the Munsell color scheme) and color variation (redoximorphic features);
 - 4. Depth of water, if observed;
 - 5. Estimated depth to seasonally high groundwater and basis for the estimate;
 - a. Explain how this determination was made and why it is thought to be representative of the seasonal high groundwater level. For a marginal site, monitoring wells shall be installed and monitored through the high groundwater period.
 - b. Monitoring shall be performed by a person approved by EHS. Any site being monitored must be reported to EHS before monitoring has begun to allow for review and have a groundwater monitoring number assigned.
 - 6. Depth to and type of bedrock or other limiting layer (perc rate >60 min/inch), if observed;
 - a. Stoniness reported on a volume basis (i.e. the percentage of the soil volume occupied by particles greater than 2 mm in diameter);
 - b. Plasticity; and
 - c. Other prominent features such as root depth, presence of calcium etc.
- D. Percolation Tests: At least one “perc” test is required within each of the proposed drainfield areas (primary and replacement) at the depth of the proposed drainfield trench excavation.
- E. Other Site Factors including land slope, flooding, surface water and amount of suitable area.
- F. Flooding potential, including location of delineated FP where it intersects the ground in the drainfield location.
- G. A copy of the recorded survey on paper no larger than 11 X 17 inches, including filing information.

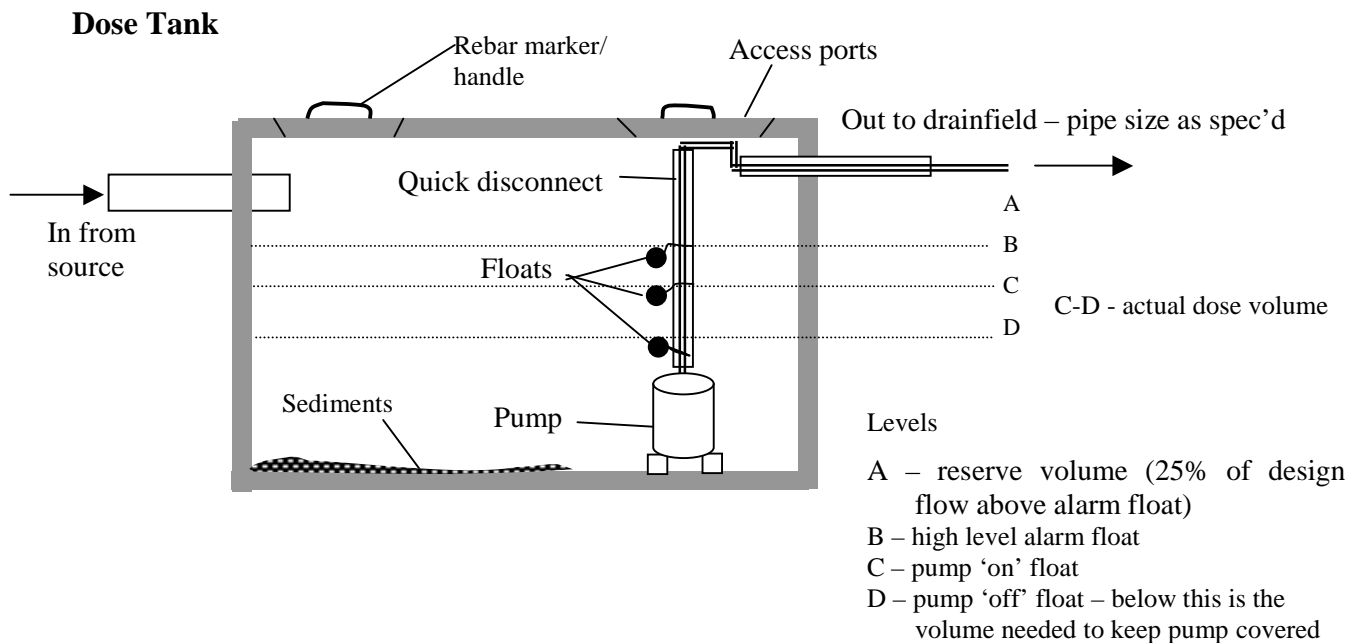
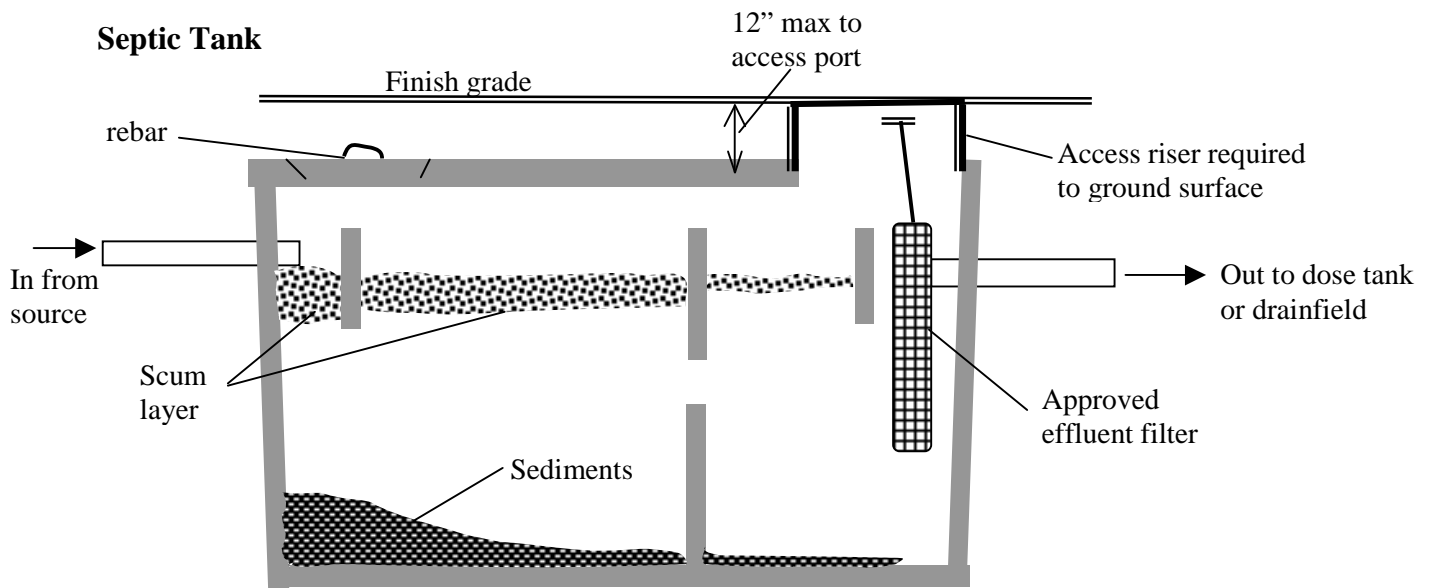
- H. For parcels requiring nondegradation review the following additional information must be provided:
1. Copies of well logs for all wells used in the non-significance determination, or
A printout of well information from the Montana Bureau of Mines and Geology (MBMG) Ground Water Information Center (GWIC) that includes all the pertinent well construction, pump test, water level, location, ownership and lithologic data may be submitted instead of actual well log copies.
 2. The location of any existing or proposed well or drainfield within 100 feet of the mixing zone and adjacent to the proposed development.
- I. Subdivision Submittals (in addition to the above),
1. Soil Surveys: These are usually found at the local USDA Natural Resources Conservation Service (NRCS) office. Soil surveys offer good preliminary information about an area and can be used to identify potential problems; however, they cannot substitute for a field investigation. If available, the most recent version of appropriate section(s) of the soil survey must be provided, including Sanitary Facilities, Engineering Index, Physical Properties, Water Features, and Soil Features.
 2. Stormwater drainage potential, including storage structures and arrows demonstrating direction of drainage flow.
- J. EHS at its discretion may require additional information.

Gallatin City-County Health Department

Septic and Dose Tank Illustration

Notes:

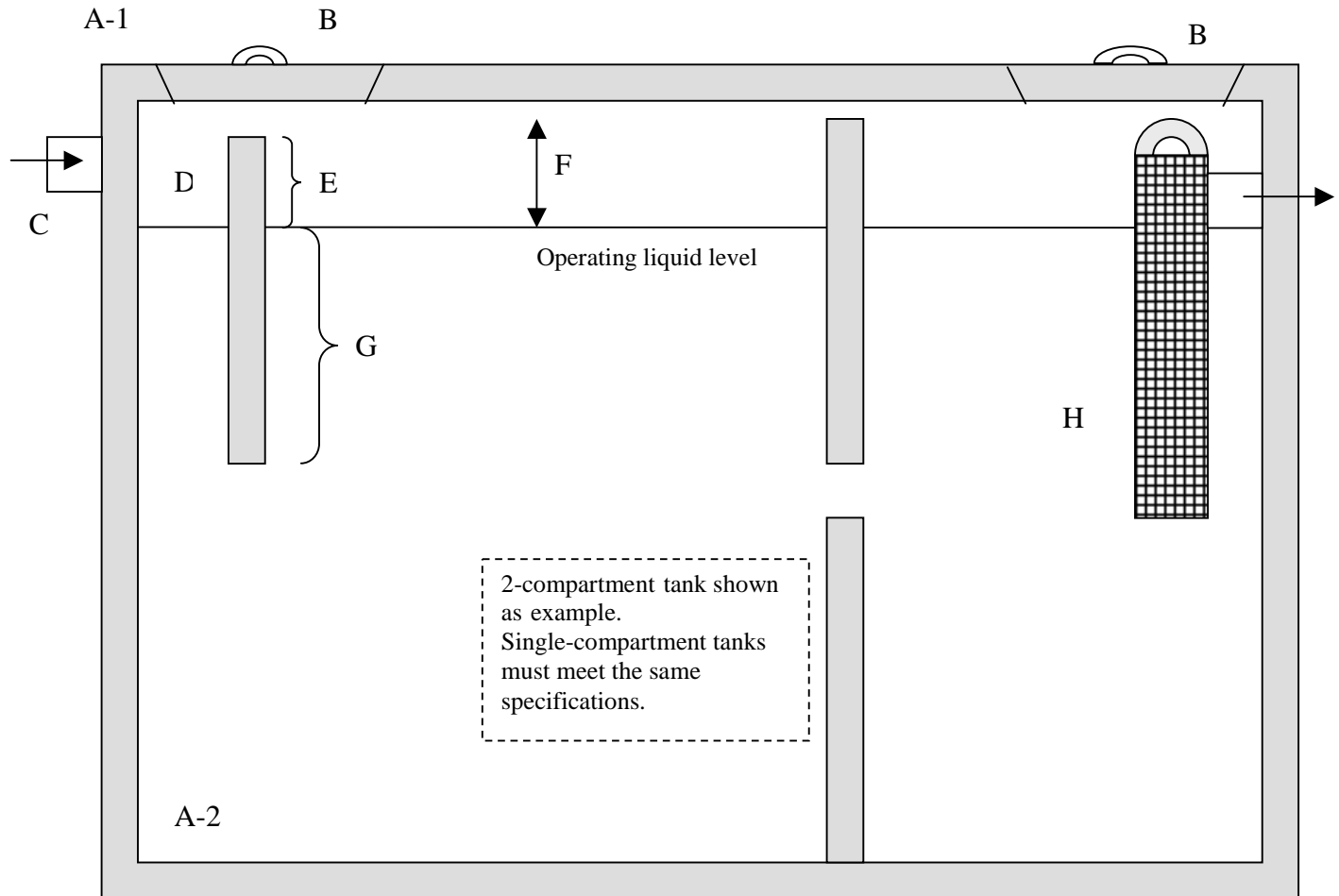
- 1) See MDEQ 4 – Chapter 7 and Health Code Chapter 3, Section 15 for details.
- 2) Minimum 10 feet solid ASTM D 1785 (Sch. 40) in and out of all tanks.
- 3) Drawing represents typical setup of tanks and are not meant to denote requirements.



Gallatin City-County Health Department

Septic Tank Design Minimums

(See MDEQ 4 – Chapter 7 and Health Code Chapter 3, Section 15)



A-1: Concrete tank covers must be at least 3 inches thick and adequately reinforced.

A-2: Tank walls and floors must be at least 3 inches thick if adequately reinforced with steel and at least 6 inches thick if not reinforced.*

*Concrete must have a water/cement ratio less than 0.45, a 28-day compressive strength of at least 4,000 psi, and must be made with sulfate-resistant cement (tricalcium aluminate content of less than 8%.

B: Access lids must be at least 2 inches thick.

Accesses must be located above each inlet & outlet to facilitate baffle maintenance, measuring at least 8 inches in diameter and marked with rebar.

The access to the effluent filter must be large enough to enable filter maintenance and must be extended to the finished ground surface.

An access at least 1.75 square feet in size must be provided into each compartment.

Each access must extend to within 12 inches of the finished ground surface.

C: The septic tank inlet and outlet must be at least 4 inches in diameter.

D: The inlet invert must enter the tank 3 inches above the liquid level.

E: Vented tees or baffles must extend above the liquid level a minimum of 7 inches.

F: A septic tank must provide an air space above the liquid level, equal to at least 10% of the tank's liquid capacity.

G: Tees or baffles must extend below the liquid level to a depth where at least 10% of the tank's liquid volume is above the bottom of the tee or baffle.

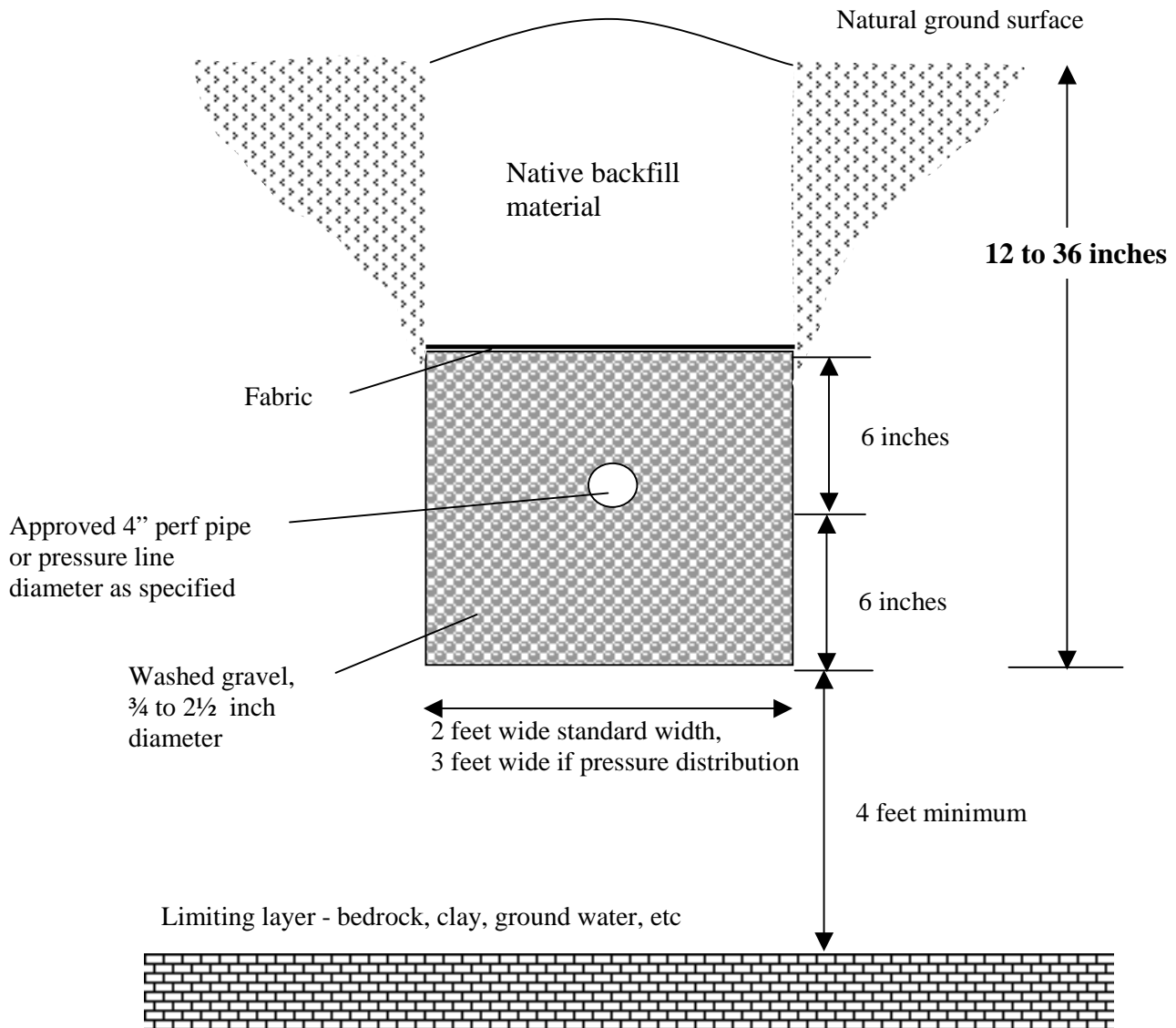
H: An effluent filter screen must be used in all systems prior to secondary treatment.

Gallatin City-County Health Department

Standard Trench Detail Illustration

Notes:

- 1) See MDEQ 4 – Chapter 8 and Health Code Chapter 3, Section 17.02 for details.
- 2) Drawing Not to scale.
- 3) Gravity and Pressure Distribution details.

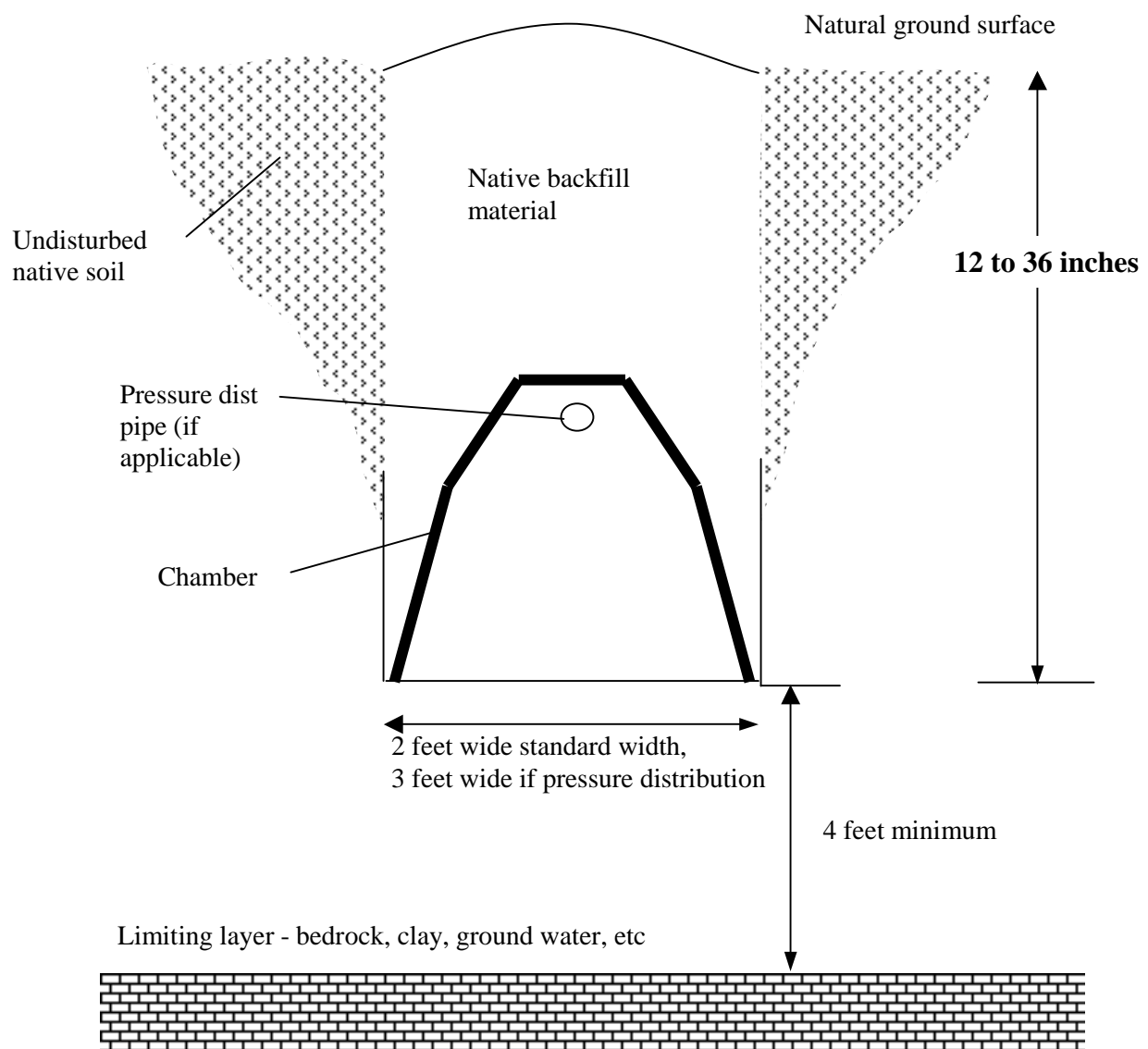


Gallatin City-County Health Department

Gravelless Trench Illustration

Notes:

- 4) See MDEQ 4 – Chapter 13 for details.
- 5) Drawing Not to scale.
- 6) Uses chamber system.

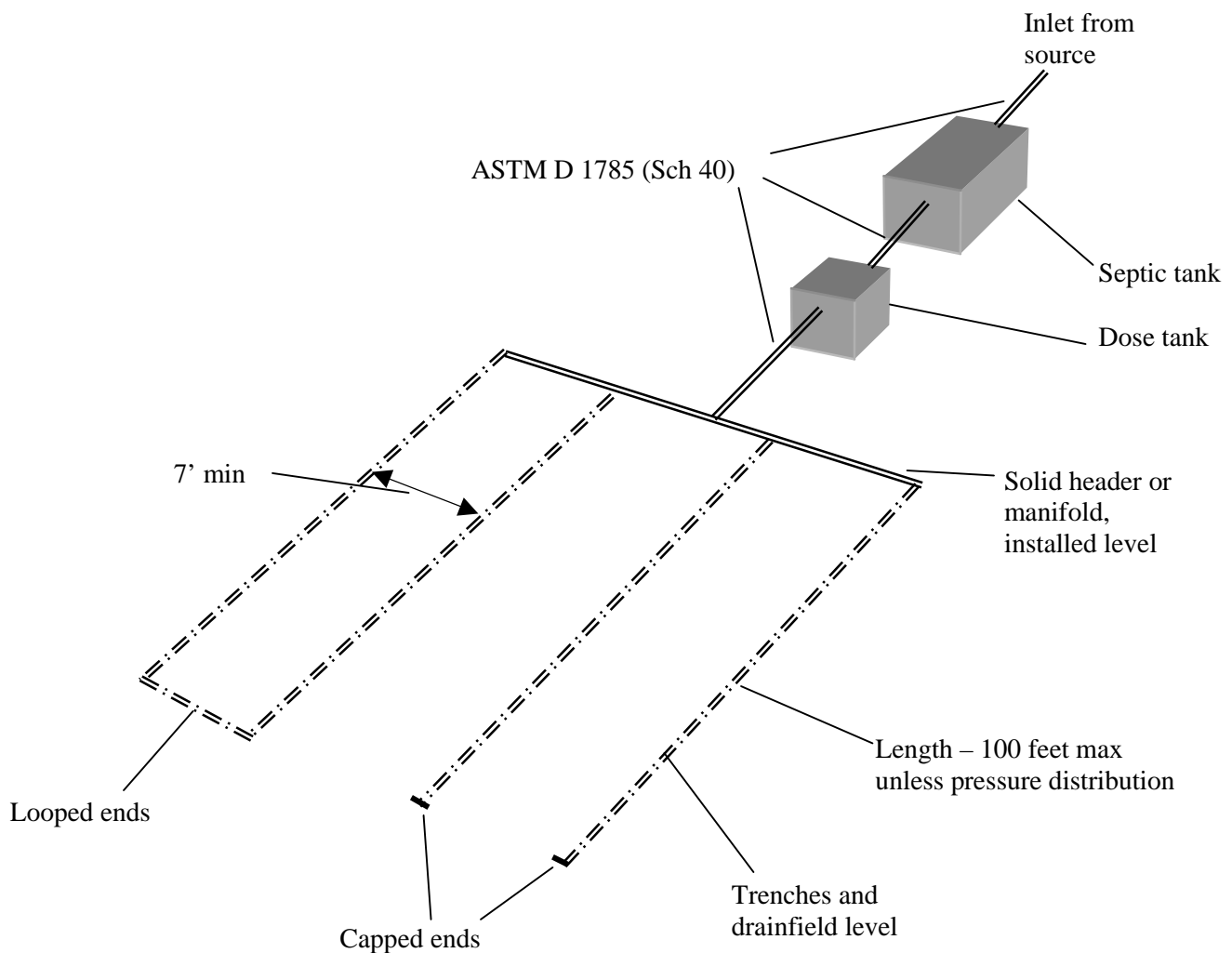


Gallatin City-County Health Department

Level Drainfield Site Illustration

Notes:

- 1) All trenches shall be capped or looped. Looped is preferable and should be done if possible.
- 2) Trenches shall be level.
- 3) All absorption systems must have at least two trenches.
- 4) The maximum length of any absorption trench is 100 feet unless pressure distribution is used.
- 5) A solid header, distribution box, or other manifold must be used to evenly distribute effluent.
- 6) When a manifold is used, equal numbers and amounts of trenches/pipe on both sides must be present.

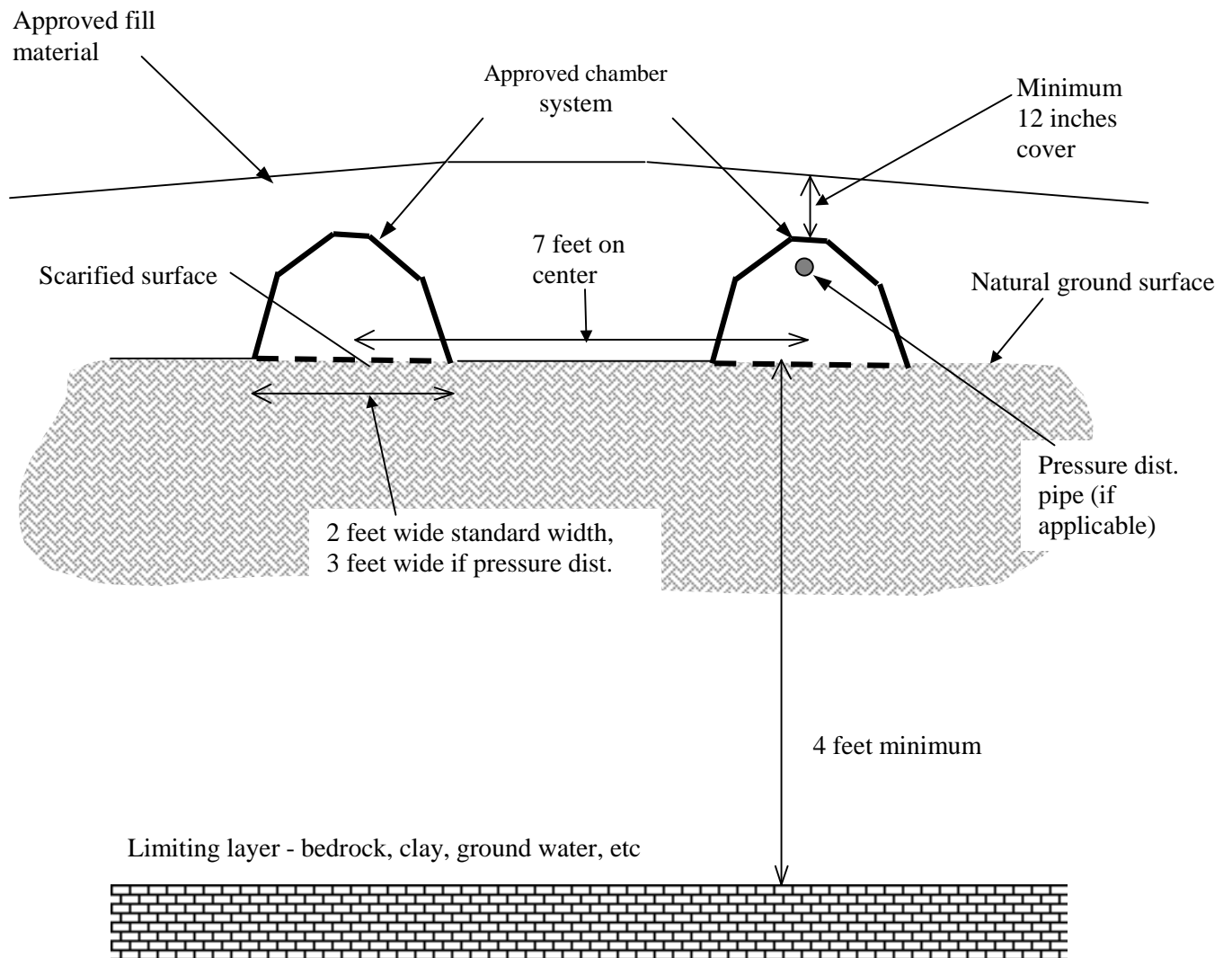


Gallatin City-County Health Department

At-Grade Drainfield Illustration

Notes:

- 1) See MDEQ4 – Chapter 11 for details
- 2) Drawing Not to scale.
- 3) This illustration uses chamber systems.

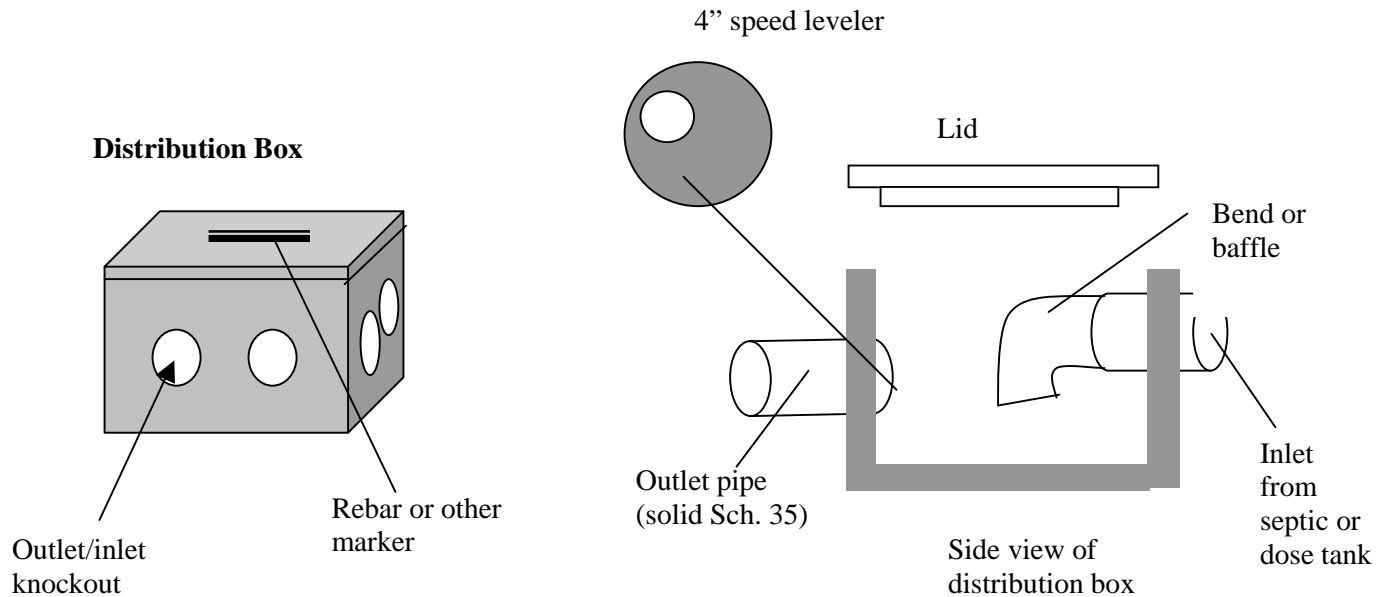


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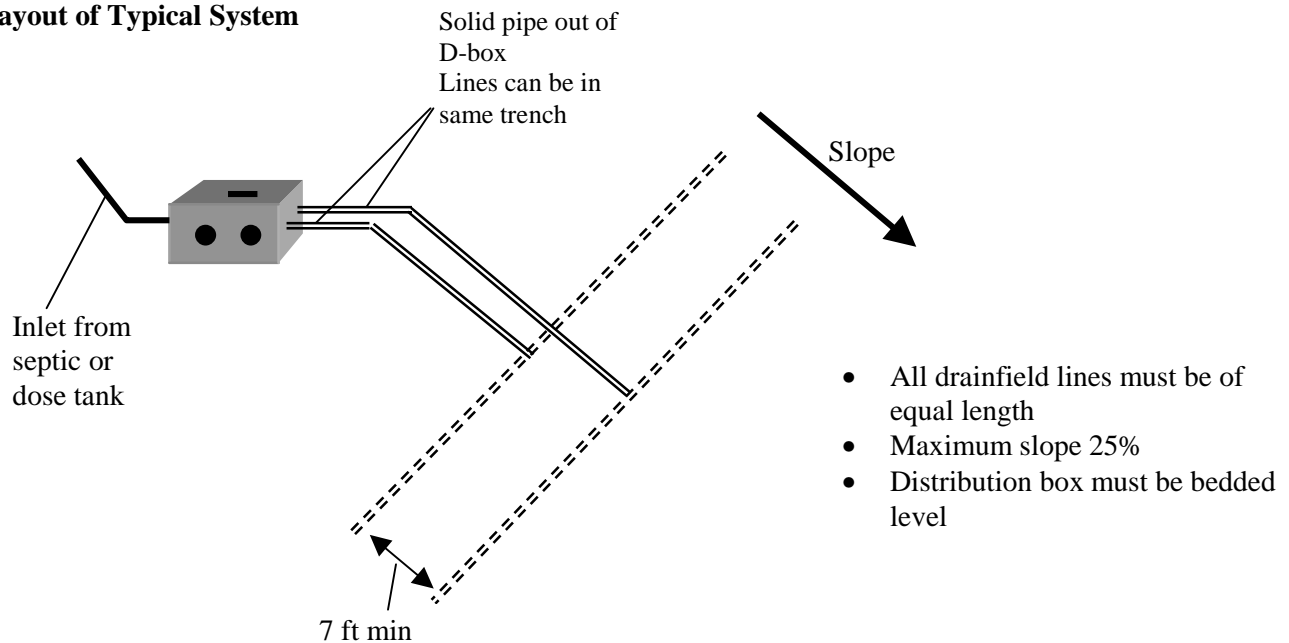
Sloping Drainfield Site

Notes: See MDEQ-4 Section 8.7 Distribution boxes.

- 1) 5 feet minimum solid Sch. 35 pipe all outlets used before start of perforated pipe.
- 2) Interior bend or baffle required, angle cut.
- 3) Speed levelers or baffling device to insure equal distribution must be used.
- 4) Rebar or other marker must be used to indicate location.



Layout of Typical System

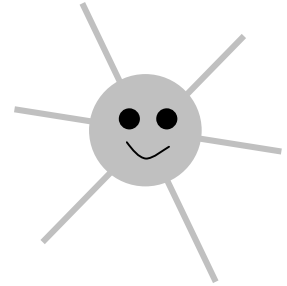


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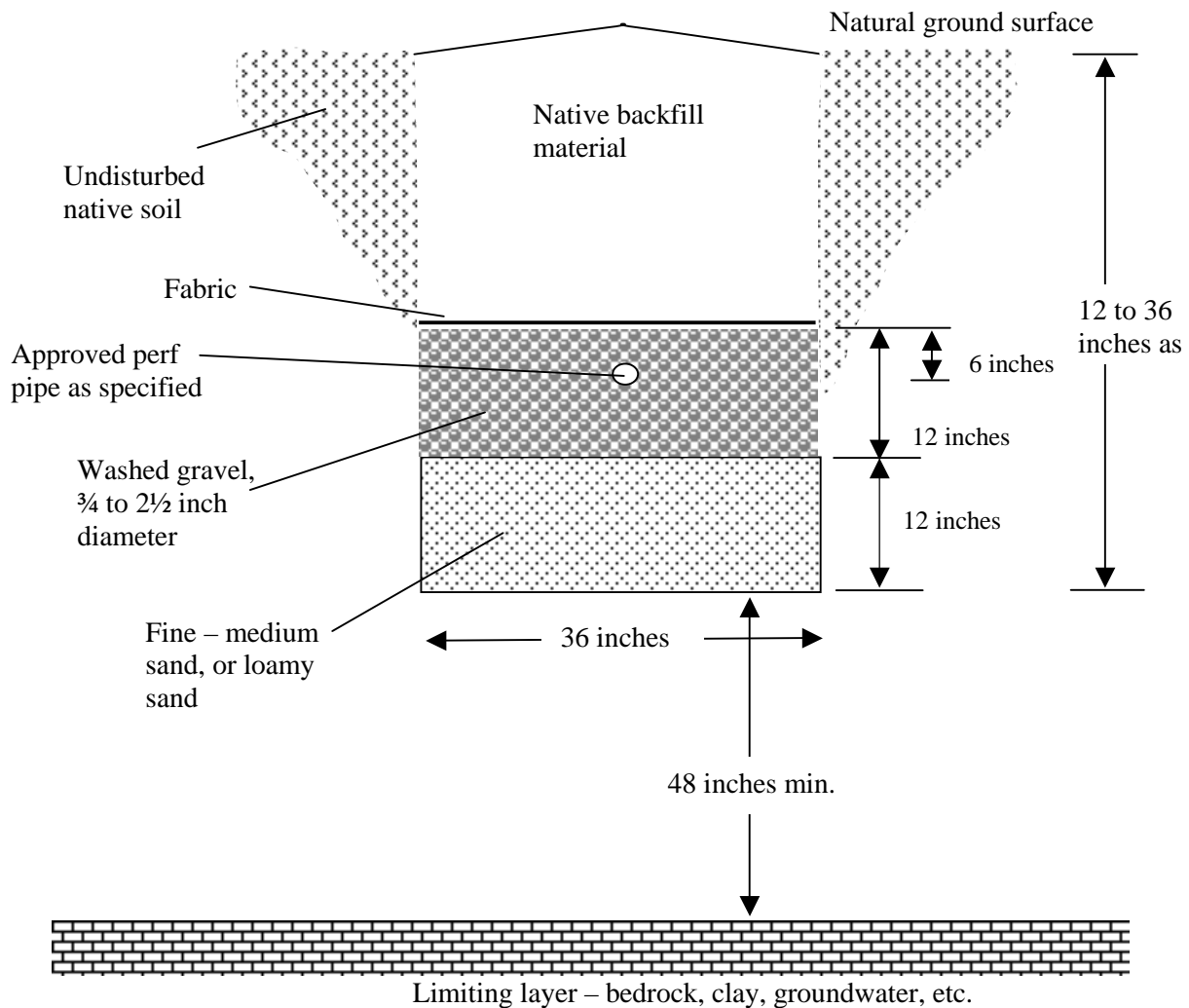
Sand Lined Absorption Trench Detail

Notes:

- 1) See MDEQ 4 – Chapter 12 for details.
- 2) Drawing Not to scale.
- 3) All sand lined systems in Gallatin County must be pressure dosed



Pressure Dosed Design

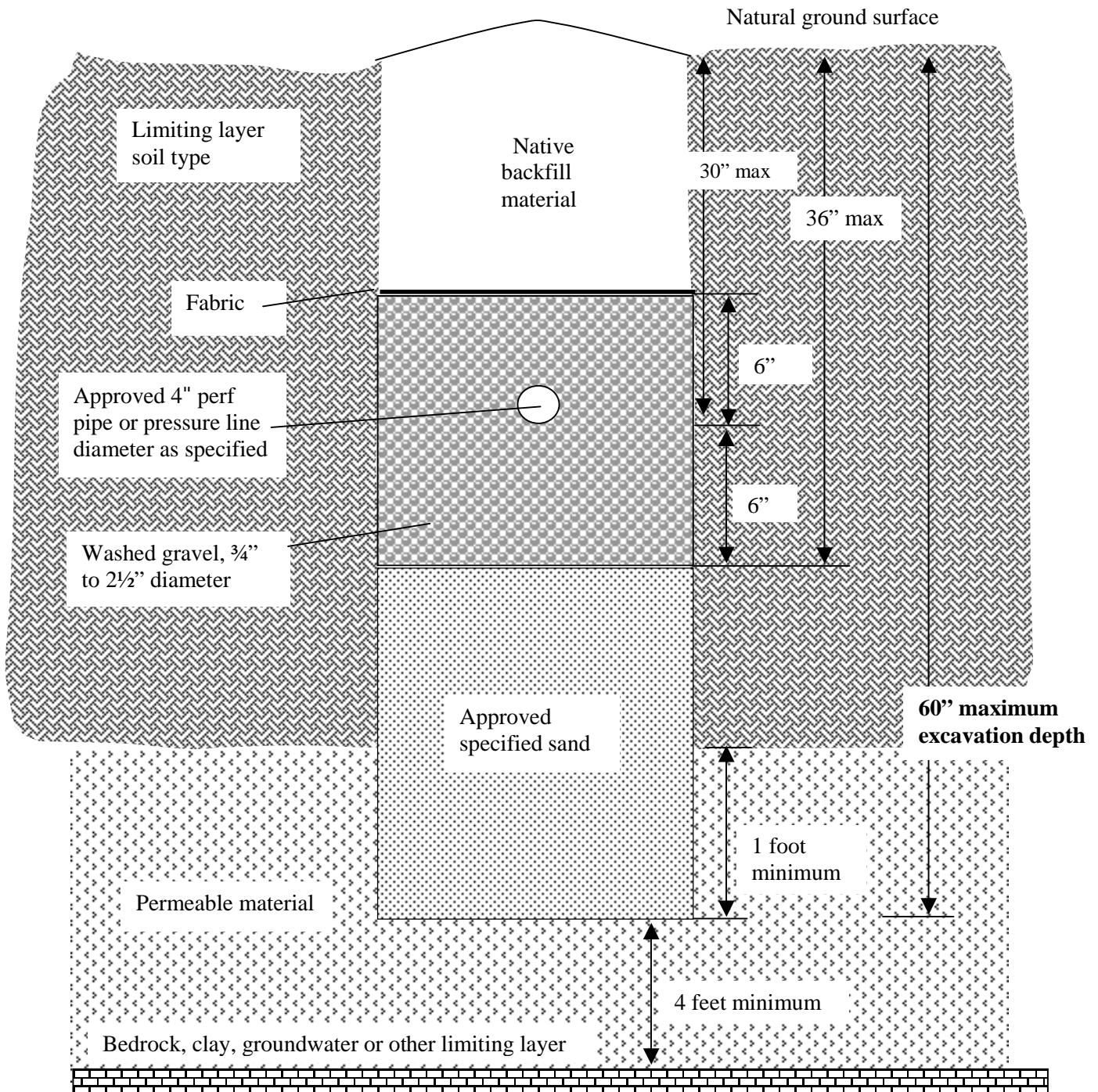


Gallatin City-County Health Department

Deep Absorption Trench Illustration

Notes:

- 1) See MDEQ 4 – Chapter 10 for details.
- 2) Drawing Not to scale
- 3) Gravity & Pressure Distribution details (2 foot wide standard width, 3 feet wide pressure dosed).



AS-BUILT MINIMUM REQUIREMENTS
Submittal Checklist

Person Responsible for Certification: _____ **Permit #** _____

Property Owner _____ **Site Address:** _____

System Certification and as-built drawings must be submitted within **30 days** of the date a WWTS inspection is scheduled with EHS.

- _____ Signed Certification form (**Original signature**, signed by appropriate individual per system type)
- _____ One copy of the as-built drawing, no larger than 11X 17 in permanent ink. EHS reserves the right to require illegible and incomplete plans be revised and resubmitted within 30 days of notification.

As-built minimum requirements are as follows: (See Guidance/Policy Documents)

Verify proper locations of well and septic system on As-built drawing against approved site-plan.

- _____ 1) Septic tank.
- _____ 2) All plumbing stub outlets.
- _____ 3) Sewer line between building and septic tank.
- _____ 4) Sewer line between septic tank and any distribution boxes, inspection boxes, pump tanks, and drainfield lines.
- _____ 5) Distribution boxes, inspection boxes, and pump tanks.
- _____ 6) All drainfield lines. The length of each individual drainfield line shown as well as the total number of lineal feet and/or square footage of drainfield lines.
- _____ 7) The approved drainfield replacement area.
- _____ 8) The location of any unusual construction features in the drainfield must be clearly indicated.
- _____ 9) Well location(s) or a statement that the well was not yet installed at the time of installation.
- _____ 10) Distances between any drainfield lines and the edges of foundations, property lines, lakes, streams, well, driveways, and water lines.
- _____ 11) A minimum of two measurements from one or more fixed landmarks (i.e. building foundation) to the lid of any septic tank, pump tank, and distribution box, to enable future location of these components.
- _____ 12) Location, size, shape and placement of all buildings or proposed buildings on the site showing their relations to the sewage disposal system and to any easements.
- _____ 13) North arrow orientation.
- _____ 14) Location and name of the primary access road to the property (county road, state highway, etc.)
- _____ 15) "As-built" must be clearly marked "**AS-BUILT**", noting the name of the person who drew it.
- _____ 16) **Final Approval Requirements** (Should be noted on permit. Does not include monitoring or documentation of usage)
 - _____ Ditch Abandoned/filled _____ Easement filed _____ Address Verification _____ Trench Depth
 - _____ Waiver of right to protest _____ Other _____

As-builts are not overlays of the original design, unless the as-built is clearly distinguishable from the original plan and is reproducible as such.

Additional information may be requested at EHS discretion.

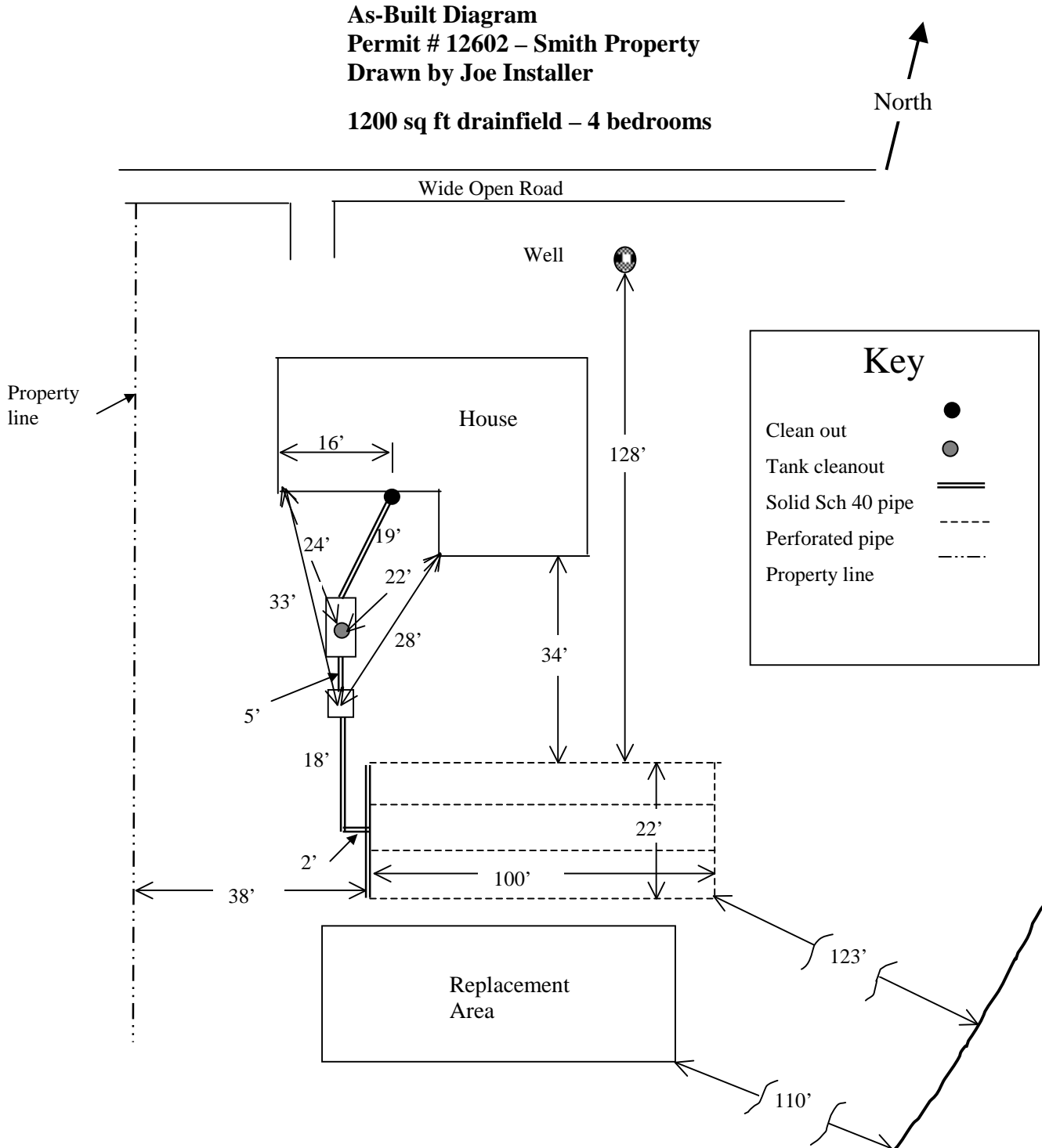
Note: If drawing is to scale, recommended scale is one-inch equals twenty feet or one-inch equals thirty feet.

Gallatin City-County Health Department

As-Built Illustration

Notes:

1) Drawing either to scale or required distances marked.



VARIANCE PROCEDURE

- A. Purpose. A variance provides limited flexibility from strict compliance with GCCHD regulations.
- B. Applicability. When certain circumstances preclude compliance with requirements of GCCHD regulations, a person may apply to the Board of Health for a variance from the applicable regulation.
 - 1. For each variance application, the property owner/authorized agent must clearly demonstrate that all alternatives not requiring a variance have been explored.
 - 2. Variance requests related to the proposed use of an experimental system must provide for an acceptable alternative system should the experimental system prove to be inadequate in terms of treatment, dispersal or operation and maintenance.
- C. Scope of Variance.
 - 1. Variances are non-transferable and remain valid only for the specific sites and WWTS permits for which they are granted.
 - 2. All other provisions of GCCHD regulations shall apply to variance recipients except those specifically exempted by the Board pursuant to the variance.
 - 3. Variance requests will be processed and reviewed on a case-by-case basis.
- D. Standard for Granting Variance.
 - 1. The property owner/authorized agent must first prove:
 - a. The system that would be allowed by the variance is unlikely to cause pollution of state waters in violation of 75-5-605, MCA; and
 - b. The granting of the variance:
 - i. Will protect the quality and potability of water for public water supplies and domestic uses, and will protect the quality of water for other beneficial uses, including those uses specified in 76-4-101, MCA; and
 - ii. Will not adversely affect public health, safety and welfare; and
 - c. The variance will not conflict with the requirements of 17.36.907(3), ARM.
 - 2. Next, the property owner/authorized agent must prove:
 - a. Special circumstances exist where strict compliance with GCCHD regulations will result in unnecessary hardship that is:
 - i. Peculiar to the property owner's property or situation; and
 - ii. Not caused by the property owner's action or inaction. (Examples of a property owner's action or inaction include, but are not limited to, new construction or the extensive remodeling of a structure in which the strength or amount of wastewater produced is increased); and
 - b. The variance does not conflict with the purpose of GCCHD regulations.
- E. Variance procedure.
 - 1. A complete variance application shall be submitted to EHS within 30 days after a permit is denied. If EHS does not receive a variance application within the prescribed time, then a variance shall not be granted.
 - 2. EHS shall determine if a variance application is complete.
 - 3. If EHS determines that an application is not complete, it shall notify the property owner/authorized agent of the deficiencies.
 - a. A complete variance application shall include:
 - i. Property owner's name and address;

- ii. Specific provision or provisions of GCCHD regulation from which variance is requested;
 - iii. Legal description or address where variance is requested;
 - iv. Detailed and accurate description of the proposed project or circumstances under consideration including a statement that alternatives not requiring a variance have been explored;
 - v. Specific written explanation addressing each criteria under the Standard for Granting Variance above;
 - vi. A list of the names and addresses of all adjacent property owners. Failure to provide a complete and accurate list may result in delay of the variance hearing;
 - vii. Any further relevant information which EHS may require which is reasonably obtainable by the property owner/authorized agent.
- 4. If EHS determines that an application is complete, the Board shall schedule a public hearing within 45 days.
- 5. EHS shall serve notice of the hearing to the property owner at the address on the permit application by certified mail or by personal service at least 14 days before the hearing.
- 6. EHS shall publish notice of hearing in accordance with Section 7-1-2121, MCA.
- 7. Notice shall be sent by EHS to all adjacent property owners using the list of names and addresses supplied by the property owner/authorized agent by regular mail or personal service at least 14 days before the hearing.
- F. Fees - The Board shall establish a fair and reasonable variance application fee (see fee schedule). The application fee must be paid in full before a variance will be considered. If the variance application is withdrawn prior to the public notification process, the Health Officer may authorize a return of a portion of the variance fees. Variance application fees are non-refundable if public notification has taken place. The Board may approve changes in fees at regularly scheduled board meetings.
- G. Restrictions on variance.
 - 1. Revisions or modifications made to GCCHD regulations shall not be grounds for a variance.
 - 2. Expiration of variance - Unless otherwise specified in GCCHD regulations, the privilege to execute a variance expires two (2) years following approval by the Board.
 - 3. No variance granted pursuant to this section shall be construed to prevent or limit the application of emergency provisions and procedures established in GCCHD regulations or relieve the property owner of responsibility of complying with other applicable local, state, or federal rules or standards.
- H. Variance Hearing Procedure.
 - 1. Variance hearings shall be conducted pursuant to the hearing procedures adopted by the BOH.
- I. Continuances.
 - 1. The Board may continue a hearing on it's own initiative for a period not to exceed 45 days.
 - 2. A hearing may be continued for longer than 45 days only if circumstances require a longer period and both the Board and the property owner/authorized agent agree to a specific period.
- J. Appeals.
 - 1. If a variance petition is denied, the property owner may, under Section 75-5-305, MCA, appeal to the Board of Environmental Review.
- K. Variance Revocation. A variance may be revoked by the Board if:
 - 1. Information is withheld, falsified or inaccurately supplied by the property owner or their authorized agent.
 - 2. Conditions of the variance and/or permit approval are not satisfied.